IN THE CLAIMS

Please amend the claims as follows:

Claims 1-4 (Cancelled).

Claim 5 (Currently Amended): A receiver having L (L is an integer equal to or greater than 2) antennas for an MIMO communication system comprising:

a channel state estimating means for estimating a state of each communication channel from received signals received by the L antennas to output information of channel state;

a feedback signal generating means for generating feedback information according to the information of channel state;

a feedback-delay compensating means for processing the feedback information in order to compensate feedback-delay of a feedback path;

a proper reception weight generating means for generating proper reception weights by using the information of channel state and processed feedback information from the feedback-delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective K signal streams (K is an integer equal to or less than smaller one of N or L, N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by using the information of channel estimation from the channel state estimating means, received signals received by L antennas and information of a known symbol,

wherein the channel state estimating means

outputs information of channel estimation

the feedback signal generating means comprises:

a transmission weight generator for generating K*N transmission weights based on the information of channel estimation from the channel state estimating means and sending the transmission weights as the feedback information to a transmitter through the feedback path;

the feedback-delay compensating means comprises:

a transmission weight accumulation unit for accumulating the transmission weights for a predetermined interval and outputting the accumulated transmission weights as the processed feedback information; and

the proper reception weight generating means comprises:

a first reception weight generator for generating K*L first reception weights by using the information of channel estimation from the channel state estimating means and processed feedback information from the transmission weight accumulation unit;

a second reception weight generator for generating K*L second reception weights by using the information of channel state from [[the]] a channel information accumulation unit and processed feedback information from the transmission weight accumulation unit; and

a weight selector for estimating a transmission quality according to the first reception weights, second reception weights, processed feedback information, information of

channel state and the condition of received power from the received power estimation unit,

and selecting the proper reception weights.

Claim 6 (Currently Amended): A receiver having L (L is an integer equal to or

greater than 2) antennas for an MIMO communication system comprising:

a channel state estimating means for estimating a state of each communication

channel from received signals received by the L antennas to output information of channel

state;

a feedback signal generating means for generating feedback information according to

the information of channel state;

a feedback-delay compensating means for processing the feedback information in

order to compensate feedback-delay of a feedback path;

a proper reception weight generating means for generating proper reception weights

by using the information of channel state and processed feedback information from the

feedback-delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective

K signal streams (K is an integer equal to or less than smaller one of N or L, N being a

number of antennas at a transmitter that transmits signals to the receiver and N is an integer

equal to or greater than 2) by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective

composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the

demodulator to reproduce an original transmission signal; and

4

a received power estimation unit for estimating a condition of received power by

using the information of channel estimation from the channel state estimating means,

received signals received by L antennas and information of a known symbol,

wherein the channel state estimating means includes a channel information selector

for selecting channel information to be used as the information of channel state for generating

K*L proper reception weights according to the information of channel estimation from the

channel state estimating means, accumulated information of channel estimation in [[the]] a

channel information accumulation unit and condition of received power as well as given

information of communication capacity, information of delay time of the communication

channel and information of Doppler frequency;

the feedback signal generating means comprises:

a transmission weight generator for generating K*N transmission weights

based on the information of channel estimation from the channel state estimating means and

sending the transmission weights as the feedback information to a transmitter through the

feedback path;

the feedback-delay compensating means comprises:

a transmission weight accumulation unit for accumulating the transmission

weights for a predetermined interval and outputting the accumulated transmission weights as

the processed feedback information; and

the proper reception weight generating means comprises:

a reception weight generator for generating K*L reception weights by using

the selected channel information from the channel information selector and processed

feedback information from the transmission weight accumulation unit.

Claim 7 (Cancelled).

Claim 8 (Currently Amended): A receiver having L (L is an integer equal to or greater than 2) antennas for an MIMO communication system comprising:

a channel state estimating means for estimating a state of each communication channel from received signals received by the L antennas to output information of channel state;

a feedback signal generating means for generating feedback information according to the information of channel state;

a feedback-delay compensating means for processing the feedback information in order to compensate feedback-delay of a feedback path;

a proper reception weight generating means for generating proper reception weights by using the information of channel state and processed feedback information from the feedback-delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective K signal streams (K is an integer equal to or less than smaller one of N or L, N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by using the information of channel estimation from the channel state estimating means, received signals received by L antennas and information of a known symbol,

wherein the channel state estimating means outputs information of channel estimation, and includes:

a channel information storage for storing past information of channel estimation which has been outputted from the channel state estimating means; and

a channel information adjusting unit for adjusting the information of channel estimation according to given information of time delay and the past information of channel estimation stored in the channel information storage and outputting adjusted information of channel estimation;

the feedback information generating means comprises:

a transmission weight generator for generating K*N transmission weights based on the adjusted information of channel estimation from the channel information adjusting unit and sending the transmission weights as the feedback information to a transmitter through the feedback path;

the feedback-delay compensating means comprises:

a transmission weight accumulation unit for accumulating the transmission weights as the processed feedback information for a predetermined interval; and

the proper reception weight generating means comprises:

a first reception weight generator for generating K*L first reception weights by using the adjusted information of channel estimation from the channel information adjusting unit and processed feedback information from the transmission weight accumulation unit;

a second reception weight generator for generating K*L second reception weights by using the information of channel state from [[the]] a channel information accumulation unit and processed feedback information from the transmission weight accumulation unit; and

a weight selector for estimating a transmission quality according to the first reception weights, second reception weights, processed feedback information, adjusted information of channel estimation and the condition of received power, and selecting reception weights to be used as the proper reception weights from the first or the second reception weights.

Claim 9 (Currently Amended): A receiver having L (L is an integer equal to or greater than 2) antennas for an MIMO communication system comprising:

a channel state estimating means for estimating a state of each communication channel from received signals received by the L antennas to output information of channel state;

a feedback signal generating means for generating feedback information according to the information of channel state;

a feedback-delay compensating means for processing the feedback information in order to compensate feedback-delay of a feedback path;

a proper reception weight generating means for generating proper reception weights by using the information of channel state and processed feedback information from the feedback-delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective K signal streams (K is an integer equal to or less than smaller one of N or L, N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by using the information of channel estimation from the channel state estimating means, received signals received by L antennas and information of a known symbol,

wherein the channel state estimating means includes:

a channel information storage for storing past information of channel estimation which has been outputted from the channel state estimating means;

a channel information adjusting unit for adjusting the information of channel estimation according to given information of time delay and the past information of channel estimation stored in the channel information storage and outputting adjusted information of channel estimation; and

a channel information selector for selecting channel information as the information of channel state to be used for generation of the proper reception weights according to the adjusted information of channel estimation, adjusted and accumulated information of channel estimation in [[the]] a channel information accumulation unit and the condition of received power as well as given information of communication capacity, information of delay time of the communication channel and information of Doppler frequency;

the feedback information generating means comprises:

a transmission weight generator for generating K*N transmission weights based on the adjusted information of channel estimation from the channel information adjusting unit and sending the transmission weights as the feedback information to a transmitter through the feedback path;

the feedback-delay compensating means comprises:

9

a transmission weight accumulation unit for accumulating the transmission

weights as the processed feedback information for a predetermined interval; and

the proper reception weight generating means comprises:

a reception weight generator for generating K*L reception weights by using

the information of channel state from the channel information selector and processed

feedback information from the transmission weight accumulation unit.

Claims 10-14 (Cancelled).

Claim 15 (Currently Amended): A receiver with L (L is an integer equal to or greater

than 2) antennas in an MIMO communication system comprising:

a feedback information generating means for generating primitive feedback

information from received L substreams received by the L antennas of the receiver, and

including a channel state estimation unit for estimating a state of each communication

channel from the received signals received by the L antennas to obtain information of channel

estimation as the primitive feedback information;

a feedback-delay processing means for adjusting the primitive feedback information

to obtain feedback information and sending the feedback information to a transmitter through

a feedback path;

a feedback-delay compensating means for compensating a feedback-delay for the

feedback information from the feedback-delay processing means, and including a channel

information accumulation unit for accumulating the primitive feedback information from the

channel state estimation unit;

a proper reception weight generating means for generating K*L proper reception weights by using the feedback-delay compensated feedback information from the feedback-delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by using the information of channel estimation from the channel state ~~estimating means~~ estimation unit, received signals received by L antennas and information of a known symbol,

wherein the channel state ~~estimating~~ estimation unit also works as the feedback-delay processing means for sending the primitive feedback information as the feedback information to the transmitter through the feedback path and to the feedback-delay compensating means;

the feedback-delay compensating means comprises:

a receiver-side transmission weight generator for generating K*N receiver-side transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) as the feedback-delay compensated feedback information based on the accumulated primitive feedback information from the channel information accumulation unit; and

the proper reception weight generating means comprises:

a first reception weight generator for generating K*L first reception weights by using the information of channel estimation from the channel state estimation unit and the feedback-delay compensated feedback information from the transmission weight generator;

11

a second reception weight generator for generating K*L second reception

weights by using the accumulated primitive feedback information from the channel

information accumulation unit and the receiver-side transmission weights from the

transmission weight generator; and

a weight selector for estimating a transmission quality according to the first

reception weights, second reception weights, receiver-side transmission weights, information

of channel estimation and the condition of received power, and selecting the proper reception

weights from the first or second reception weights.

Claim 16 (Currently Amended): A receiver with L (L is an integer equal to or greater

than 2) antennas in an MIMO communication system comprising:

a feedback information generating means for generating primitive feedback

information from received L substreams received by the L antennas of the receiver, and

including a channel state estimation unit for estimating a state of each communication

channel from the received signals received by the L antennas to obtain information of channel

estimation as the primitive feedback information;

a feedback-delay processing means for adjusting the primitive feedback information

to obtain feedback information and sending the feedback information to a transmitter through

a feedback path;

a feedback-delay compensating means for compensating a feedback-delay for the

feedback information from the feedback-delay processing means, and including a channel

information accumulation unit for accumulating the primitive feedback information from the

channel state estimation unit;

a proper reception weight generating means for generating K*L proper reception

weights by using the feedback-delay compensated feedback information from the feedback-

delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective

K signal streams by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective

composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the

demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by

using the information of channel estimation from the channel state ~~estimating means~~

estimation unit, received signals received by L antennas and information of a known symbol,

wherein the channel state ~~estimating means~~ estimation unit also works as the

feedback-delay processing means for sending the primitive feedback information as the

feedback information to the transmitter through the feedback path and to the feedback-delay

compensating means;

the feedback-delay compensating means comprises:

a receiver-side transmission weight generator for generating K*N receiver-

side transmission weights (N being a number of antennas at a transmitter that transmits

signals to the receiver and N is an integer equal to or greater than 2) as the feedback-delay

compensated feedback information based on the accumulated primitive feedback information

from the channel information accumulation unit; and

the proper reception weight generating means comprises:

a channel information selector for selecting channel information to be used for

generation of K*L proper reception weights according to the information of channel

13

estimation, accumulated information of channel estimation in the channel information

accumulation unit and the condition of received power as well as given information of

communication capacity, information of delay time and information of Doppler frequency;

and

a reception weight generator for generating K*L proper reception weights by

using the selected channel information from the channel information selector and the

feedback-delay compensated feedback information from the receiver-side transmission

weight accumulation unit.

Claim 17 (Cancelled).

Claim 18 (Currently Amended): A receiver with L (L is an integer equal to or greater

than 2) antennas in an MIMO communication system comprising:

a feedback information generating means for generating primitive feedback

information from received L substreams received by the L antennas of the receiver, and

including a channel state estimation unit for estimating a state of each communication

channel from the received signals received by the L antennas to obtain information of channel

estimation as the primitive feedback information;

a feedback-delay processing means for adjusting the primitive feedback information

to obtain feedback information and sending the feedback information to a transmitter through

a feedback path;

a feedback-delay compensating means for compensating a feedback-delay for the

feedback information from the feedback-delay processing means, and including a channel

information accumulation unit for accumulating the primitive feedback information from the

channel state estimation unit;

a proper reception weight generating means for generating K*L proper reception weights by using the feedback-delay compensated feedback information from the feedback-delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by using the information of channel estimation from the channel state ~~estimating means~~ estimation unit, received signals received by L antennas and information of a known symbol,

wherein the feedback information processing means comprises:

a channel information storage for storing past information of channel estimation which has been outputted from the channel state estimation unit; and

a channel information adjusting unit for adjusting the information of channel estimation according to given information of time delay and the past information of channel estimation stored in the channel information storage and sending the adjusted information of channel estimation as the feedback information to the transmitter through the feedback path;

wherein the channel information accumulation unit accumulates the adjusted information of channel estimation from the channel information adjusting unit for a predetermined interval;

the feedback-delay compensating means comprises:

a receiver-side transmission weight generator for generating K*N receiver-side transmission weights (N being a number of antennas at a transmitter that transmits

signals to the receiver and N is an integer equal to or greater than 2) based on the adjusted

and accumulated information of channel estimation in the channel information accumulation

unit; and

a transmission weight accumulation unit for accumulating the receiver-side

transmission weights from the receiver-side transmission weight generator for a

predetermined interval as the feedback-delay compensated feedback information; and

the proper reception weight generating means comprises:

a first reception weight generator for generating K*L first reception weights

by using the adjusted information of channel estimation from the channel state estimation

unit and the feedback-delay compensated feedback information from the transmission weight

accumulation unit;

a second reception weight generator for generating K*L second reception

weights by using the adjusted and accumulated information of channel estimation in the

channel information accumulation unit and the feedback-delay compensated feedback

information from the transmission weight accumulation unit; and

a weight selector for estimating a transmission quality according to the first

reception weights, second reception weights, feedback-delay compensated feedback

information, adjusted information of channel estimation from the channel information

adjusting unit and the condition of received power, and selecting the proper reception weights

from the first or the second reception weights.

Claim 19 (Currently Amended):   A receiver with L (L is an integer equal to or greater

than 2) antennas in an MIMO communication system comprising:

a feedback information generating means for generating primitive feedback

information from received L substreams received by the L antennas of the receiver, and

including a channel state estimation unit for estimating a state of each communication

channel from the received signals received by the L antennas to obtain information of channel

estimation as the primitive feedback information;

a feedback-delay processing means for adjusting the primitive feedback information

to obtain feedback information and sending the feedback information to a transmitter through

a feedback path;

a feedback-delay compensating means for compensating a feedback-delay for the

feedback information from the feedback-delay processing means, and including a channel

information accumulation unit for accumulating the primitive feedback information from the

channel state estimation unit;

a proper reception weight generating means for generating K*L proper reception

weights by using the feedback-delay compensated feedback information from the feedback-

delay compensating means;

a reception weight multiplier for multiplying the received L substreams of respective

K signal streams by the proper L reception weights, respectively;

a demodulator for composing the L weighted substreams to obtain respective

composed K signal streams and demodulating the composed K signal streams, respectively;

a signal combining unit for combining the demodulated K signal streams from the

demodulator to reproduce an original transmission signal; and

a received power estimation unit for estimating a condition of received power by

using the information of channel estimation from the channel state ~~estimating means~~

<u>estimation unit</u>, received signals received by L antennas and information of a known symbol,

wherein the feedback information processing means comprises:

a channel information storage for storing past information of channel

estimation which has been outputted from the channel state estimation unit;

17

a channel information adjusting unit for adjusting the information of channel estimation according to given information of time delay of the communication channel and the past information of channel estimation stored in the channel information storage and sending the adjusted information of channel estimation as the feedback information to the transmitter through the feedback path;

wherein the channel information accumulation unit accumulates the adjusted information of channel estimation from the channel information adjusting unit for a predetermined interval;

the feedback-delay compensating means comprises:

a receiver-side transmission weight generator for generating K*N receiver-side transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) based on the adjusted and accumulated information of channel estimation in the channel information accumulation unit; and

a transmission weight accumulation unit for accumulating the receiver-side transmission weights from the receiver-side transmission weight generator for a predetermined interval as the feedback-delay compensated feedback information; and

the proper reception weight generating means comprises:

a channel information selector for selecting channel information to be used for generation of K*L proper reception weights according to the adjusted information of channel estimation, adjusted and accumulated information of channel estimation in the channel information accumulation unit and the condition of received power as well as given information of communication capacity, information of delay time of the communication channel and information of Doppler frequency; and

a reception weight generator for generating K*L proper reception weights by using the selected channel information from the channel information selector and the feedback-delay compensated feedback information from the receiver-side transmission weight accumulation unit.

Claims 20-25 (Cancelled).

Claim 26 (Previously Presented): A method of receiving and reproducing MIMO transmission signals comprising:

estimating a state of each communication channel from received signals received by L antennas of an MIMO receiver to obtain and output information of channel state;

generating feedback information according to the information of channel state;

sending the feedback information to a transmitter through a feedback path;

processing the feedback information in order to compensate feedback-delay of a feedback path;

generating K*L proper reception weights by using the information of channel state and processed feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal;

estimating a condition of received power by using information of channel estimation, received signals received by L antennas and information of a known symbol,

wherein the generating the feedback information includes generating K*N transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) as the feedback information based on the information of channel estimation;

the processing the feedback information includes accumulating the transmission weights as the processed feedback information for a predetermined interval; and

the generating K*L proper reception weights includes:

generating K*L first reception weights by using the information of channel estimation and processed feedback information;

generating K*L second reception weights by using the information of channel state and processed feedback information;

estimating a transmission quality according to the first reception weights, second reception weights, processed feedback information, information of channel state and the condition of received power; and

selecting the proper reception weights from the first or the second reception weights.

Claim 27 (Previously Presented): A method of receiving and reproducing MIMO transmission signals comprising:

estimating a state of each communication channel from received signals received by L antennas of an MIMO receiver to obtain and output information of channel state;

generating feedback information according to the information of channel state;

sending the feedback information to a transmitter through a feedback path;

processing the feedback information in order to compensate feedback-delay of a feedback path;

generating K*L proper reception weights by using the information of channel state and processed feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal;

estimating a condition of received power by using information of channel estimation, received signals received by L antennas and information of a known symbol,

wherein the estimating a state of each communication channel includes selecting channel information to be used as the information of channel state for generation of the proper L reception weights according to the information of channel estimation, accumulated information of channel estimation and the condition of received power as well as given information of communication capacity, information of delay time of the communication channel and information of Doppler frequency;

the generating the feedback information includes generating K*N transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) based on the information of channel estimation;

the sending the feedback information includes sending the transmission weights as the feedback information to the transmitter through the feedback path; and

the processing the feedback information includes accumulating the transmission

weights for a predetermined interval to obtain accumulated transmission weights as the

processed feedback information.

Claim 28 (Cancelled).

Claim 29 (Previously Presented): A method of receiving and reproducing MIMO

transmission signals comprising:

estimating a state of each communication channel from received signals received by L

antennas of an MIMO receiver to obtain and output information of channel state;

generating feedback information according to the information of channel state;

sending the feedback information to a transmitter through a feedback path;

processing the feedback information in order to compensate feedback-delay of a

feedback path;

generating K*L proper reception weights by using the information of channel state

and processed feedback information;

multiplying the received L substreams of respective K signal streams by the proper L

reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal

streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission

signal;

estimating a condition of received power by using information of channel estimation,

received signals received by L antennas and information of a known symbol,

wherein the estimating a state of each communication channel includes:

storing past information of channel estimation which has been obtained;

adjusting the information of channel estimation according to given information of time delay and the stored past information of channel estimation; and

accumulating the adjusted information of channel estimation as the information of channel state for a predetermined interval;

the generating the feedback information includes generating K*N transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) based on the adjusted information of channel estimation;

the sending the feedback information includes sending the transmission weights as the feedback information to the transmitter through the feedback path;

the processing the feedback information includes accumulating the transmission weights as the processed feedback information for a predetermined interval; and

the generating K*L proper reception weights includes:

generating K*L first reception weights by using the adjusted information of channel estimation and processed feedback information;

generating K*L second reception weights by using the information of channel state and processed feedback information;

estimating a transmission quality according to the first reception weights, second reception weights, processed feedback information, adjusted information of channel estimation and the condition of received power; and

selecting reception weights to be used as the proper reception weights from the first or the second reception weights.

Claim 30 (Previously Presented): A method of receiving and reproducing MIMO transmission signals comprising:

estimating a state of each communication channel from received signals received by L antennas of an MIMO receiver to obtain and output information of channel state;

generating feedback information according to the information of channel state;

sending the feedback information to a transmitter through a feedback path;

processing the feedback information in order to compensate feedback-delay of a feedback path;

generating K*L proper reception weights by using the information of channel state and processed feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal;

estimating a condition of received power by using information of channel estimation, received signals received by L antennas and information of a known symbol,

wherein the estimating a state of each communication channel includes:

storing past information of channel estimation which has been obtained;

adjusting the information of channel estimation according to given information of time delay and the stored past information of channel estimation to obtain adjusted information of channel estimation;

accumulating the adjusted information of channel estimation for a predetermined interval; and

selecting channel information as the information of channel state to be used for generation of the proper L reception weights according to the adjusted information of channel estimation, adjusted and accumulated information of channel estimation and the condition of received power as well as given information of communication capacity, information of delay time of the communication channel and information of Doppler frequency;

the generating the feedback information includes generating K*N transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) based on the adjusted information of channel estimation;

the sending the feedback information includes sending the transmission weights as the feedback information to the transmitter through the feedback path; and

the processing the feedback information includes accumulating the transmission weights as the processed feedback information for a predetermined interval.

Claims 31-34 (Cancelled).

Claim 35 (Previously Presented): A method of receiving and reproducing MIMO transmission signals comprising:

generating primitive feedback information from received L substreams received by L antennas of a receiver;

adjusting the primitive feedback information to obtain feedback information;

sending the feedback information to a transmitter through a feedback path;

compensating feedback-delay for the feedback information;

generating K*L proper reception weights by using the feedback-delay compensated feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal; and

estimating a condition of received power by using information of channel estimation, received signals received by L antennas and information of a known symbol,

wherein the generating primitive feedback information includes estimating a state of each communication channel from the received signals received by the L antennas to obtain the information of channel estimation as the primitive feedback information;

the adjusting the primitive feedback information includes making the primitive feedback information itself as the feedback information;

the compensating feedback-delay includes generating K*N receiver-side transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) as the feedback-delay compensated feedback information based on the accumulated feedback information; and

the generating K*L proper reception weights includes:

generating K*L first reception weights by using the information of channel estimation and feedback-delay compensated feedback information;

generating K*L second reception weights by using the accumulated feedback information and receiver-side transmission weights;

estimating a transmission quality according to the first reception weights, second reception weights, receiver-side transmission weights, information of channel estimation and the condition of received power; and

selecting the proper reception weights from the first or second reception weights according to the transmission quality.

Claim 36 (Previously Presented): A method of receiving and reproducing MIMO transmission signals comprising:

generating primitive feedback information from received L substreams received by L antennas of a receiver;

adjusting the primitive feedback information to obtain feedback information;

sending the feedback information to a transmitter through a feedback path;

compensating feedback-delay for the feedback information;

generating K*L proper reception weights by using the feedback-delay compensated feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal; and

estimating a condition of received power by using information of channel estimation,

received signals received by L antennas and information of a known symbol,

wherein the generating the primitive feedback information includes estimating a state

of each communication channel from the received signals received by the L antennas to

obtain the information of channel estimation as the primitive feedback information;

wherein the adjusting the primitive feedback information includes making the

primitive feedback information itself as the feedback information;

the compensating feedback-delay includes:

accumulating the feedback information for a predetermined interval; and

generating K*N receiver-side transmission weights (N being a number of

antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or

greater than 2) as the feedback-delay compensated feedback information based on the

accumulated feedback information; and

the generating K*L proper reception weights includes:

selecting channel information to be used for generation of K*L proper

reception weights according to the primitive feedback information, accumulated feedback

information and the condition of received power as well as given information of

communication capacity, information of delay time and information of Doppler frequency;

and

generating K*L proper reception weights by using the selected channel

information and the feedback-delay compensated feedback information.

Claim 37 (Cancelled).

Claim 38 (Previously Presented): A method of receiving and reproducing MIMO transmission signals comprising:

generating primitive feedback information from received L substreams received by L antennas of a receiver;

adjusting the primitive feedback information to obtain feedback information;

sending the feedback information to a transmitter through a feedback path;

compensating feedback-delay for the feedback information;

generating K*L proper reception weights by using the feedback-delay compensated feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal; and

estimating a condition of received power by using information of channel estimation, received signals received by L antennas and information of a known symbol,

wherein the generating primitive feedback information includes estimating a state of each communication channel from the received signals received by the L antennas to obtain the information of channel estimation as the primitive feedback information;

the adjusting the primitive feedback information includes:

storing past information of channel estimation which has been obtained by; and

adjusting the information of channel estimation according to given information of time delay and the past information of channel estimation;

the sending the feedback information includes sending the adjusted information of

channel estimation as the feedback information to the transmitter through the feedback path;

the compensating feedback-delay includes:

accumulating the feedback information for a predetermined interval;

generating K*N receiver-side transmission weights (N being a number of antennas at

a transmitter that transmits signals to the receiver and N is an integer equal to or greater than

2) based on the accumulated feedback information; and

accumulating the receiver-side transmission weights for a predetermined interval as

the feedback-delay compensated feedback information; and

the generating K*L proper reception weights includes:

generating K*L first reception weights by using the feedback information and

feedback-delay compensated feedback information;

generating K*L second reception weights by using the accumulated feedback

information and the feedback-delay compensated feedback information; and

estimating a transmission quality according to the first reception weights,

second reception weights, feedback-delay compensated feedback information, feedback

information and the condition of received power; and

selecting the proper reception weights from the first or second reception

weights according to the transmission quality.

Claim 39 (Previously Presented): A method of receiving and reproducing MIMO

transmission signals comprising:

generating primitive feedback information from received L substreams received by L

antennas of a receiver;

adjusting the primitive feedback information to obtain feedback information;

sending the feedback information to a transmitter through a feedback path;

compensating feedback-delay for the feedback information;

generating K*L proper reception weights by using the feedback-delay compensated feedback information;

multiplying the received L substreams of respective K signal streams by the proper L reception weights, respectively;

composing the L weighted substreams to obtain respective composed K signal streams;

demodulating the composed K signal streams, respectively;

combining the demodulated K signal streams to reproduce an original transmission signal; and

estimating a condition of received power by using information of channel estimation, received signals received by L antennas and information of a known symbol,

wherein the generating primitive feedback information includes estimating a state of each communication channel from the received signals received by the L antennas to obtain information of channel estimation as the primitive feedback information;

the adjusting the primitive feedback information includes:

storing past information of channel estimation which has been outputted;

adjusting the information of channel estimation according to given information of time delay and the stored past information of channel estimation;

the sending the feedback information includes sending the adjusted information of channel estimation as the feedback information to the transmitter through the feedback path;

the compensating feedback-delay includes:

accumulating the feedback information for a predetermined interval;

generating K*N receiver-side transmission weights (N being a number of antennas at a transmitter that transmits signals to the receiver and N is an integer equal to or greater than 2) based on the accumulated feedback information; and

accumulating the receiver-side transmission weights for a predetermined interval as the feedback-delay compensated feedback information; and

the generating K*L proper reception weights includes:

selecting channel information to be used for generation of K*L proper reception weights according to the feedback information, accumulated feedback information and the condition of received power as well as given information of communication capacity, information of delay time and information of Doppler frequency; and

generating K*L proper reception weights by using the selected channel information and the feedback-delay compensated feedback information.

Claims 40-42 (Cancelled).